Re. Point V

V. Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1 Related Art

Reference is made to the following documents:

D1: DE 199 60 786 A (SCHENCK PROCESS GMBH) June 21, 2001 (2001-06-21)

D2: WO 00/16054 A (International Electronics & Engineering SARL (LU)) March 23, 2000 (2000-03-23)

2 Independent Claims

2.1 No Novelty

The present Application does not meet the requirements of Article 33(1) PCT, because the object of Claim 1 is not novel as defined by Article 33(2) PCT.

Document D1 discloses (the references in parentheses refer to this document):

- a dynamometer element having a bolt (load-bearing axis 39),
- on which a diaphragm (1, 4, 5) is mounted,
- the diaphragm (1, 4, 5) being surrounded by a sleeve (2),
- to which a force component to be measured (Fy) is applied perpendicularly to the longitudinal direction of the bolt (39),
- the sleeve (2) being spaced from the bolt (39),
- the diaphragm (1, 4, 5) being expanded as a function of the force component (Fy),
- a sensor system (10, 11, 13, 14) being provided on the diaphragm (4) for measuring the strain.

3 Dependent Claims

3.1 Negative Evaluation

Dependent Claims 2-9, 12-16, 20-22 contain no features which, in combination with the features of any claim to which they refer, meet the requirements of PCT regarding novelty and inventive step.

3.1.1 No Novelty

Claim 4:

The sensor system of the dynamometer element in document D1 has strain gauges for measuring the strain (see Figure 2).

Claims 15, 16, 20, 22:

Document D1 (see Figures 1, 2) shows a axially symmetric dynamometer element containing an annular diaphragm (1, 4, 5), the diaphragm being designed such that inward-pointing free spaces (1, 5) are formed to define strain-sensitive areas (4) in the diaphragm.

3.1.2 No Inventive Step

Claims 2, 3:

Document D2 (see Figure 1) shows a dynamometer element having a bolt (20) and a head (22) containing an elastic element (32) for measuring a force, the bolt (20) and the head (22) being designed in one piece, and the dynamometer element being designed as a screw.

Claims 5, 6:

The use of piezoresistive elements and thin-film technology are generally known for dynamometric sensors.

Claims 7-9,

The use of a Wheatstone bridge as a circuit in the sensor system of a dynamometric sensor is generally known.

Claim 12:

Dependent Claim 12 concerns a slight design change of the dynamometer element as recited in Claim 1, which is obvious to those skilled in the art; the advantages; in particular, the advantages thus achieved are easily discerned.

Claims 13, 14:

The dynamometer element of Document D1 (see Figures 1, 2) has two joints, which are provided for connecting the force-receiving ring (2) to the housing part (3) and the force-receiving ring (2) to the bolt (39), the joints being offset with respect to one another in the radial direction.

Claim 21:

The use of diaphragms made of high-strength steel is generally known.

3.2 Positive Evaluation

Claims 10, 11, 17-19,

The combination of features in Claims 10, 11, 17-19 is neither known nor obvious from the available related art.